

essentially the same, whether in the absorbed spaces, or on the surfaces, or in the membranes of the foetal cranium, except that in the two latter cases there is a pre-existing fibrous tissue, which, before ossification begins, undergoes a change similar to that which occurs in the bone itself, and is converted into a cellular mass; so that at the border where ossification is advancing there is only an arrangement of cells; while a little beyond that point the cells have fibrous tissue abundantly mixed up with them; and there is, in fact, a resemblance to fibrous tissue in an early state of formation. The formation of perfect bone is effected by means of cells, perhaps identical with those which are found replacing the previous tissue, but at all events undistinguishable from them by any microscopical characters. To these cells, which take part in the formation of bone, the authors have given the name of "osteal cells."\*. In the case of laminated bone they arrange themselves side by side, and, together with the transparent blastema in which they lie, become impregnated with ossific matter, and permanently fused with the bone tissue with which they lie in contact. By the linear arrangement of these osteal-cells, lamination is produced. In the case of non-laminated bone the cells are simply ossified without arrangement. Lying among the osteal-cells will be seen some which have accumulated around them a quantity of tissue which forms a thick investment to them; they then become granular, and take on in every respect the characters of a lacunal-cell. These are deposited at intervals along the line of ossification, and become blended with the general mass, the granular cell remaining as a lacuna, and sending out processes among the osteal-cells in all directions. In old bone, the cell character is in great part lost by a general blending of the constituents, but may in many specimens be still here and there recognized. Many instances are given in support of the conclusion, that absorption of bone and of dental tissue is effected directly through the influence of cells. We cannot, however, enter more fully into the subject, especially as many points cannot be rendered generally intelligible without reference to the specimens, or to the numerous drawings which accompany the paper.—*Med. Times and Gaz.* Oct. 2, 1852.

## ORGANIC CHEMISTRY.

7. *On the Condition of Albumen in the Economy.*—M. MIALHE states, in the following propositions, the results of a series of chemical and physical investigations which he has been pursuing:—

1. The *normal* albumen of the serum of the blood and of white of egg does not traverse animal membrane. When, in endosmotic experiments, there appears a certain amount of albuminous matter in the external fluid, this is not normal, but *modified* albumen, proceeding from the maceration of the membranes, which have allowed the transudation of the albuminous matters with which they have become impregnated. When the animal membranes are placed in a preservative fluid, as syrup, or the membranes of the egg, which long resist maceration, and are perfectly endosmotic, are employed, the serum of the blood and white of egg never traverse them. Albumen is then insoluble.—2. This condition of insolubility should imply an organization similar to that of other substances which do not obey the laws of endosmosis, as fibrine, caseine, and eror in animals, gluten and starch in plants—substances known to have a globular organization, and held in suspension by the liquids which act as their vehicles. The globular condition of albumen cannot be directly seen by the microscope, or even

\* The views here brought forward of the removal and replacement of tissue through the agency of cells are, so far as the authors know, entirely new; and may have an important bearing on many points of physiology and pathology. Indeed, this is, perhaps, the first time that the fact (which has been generally assumed) of the entire absorption of tissue in the processes of nutrition, and its replacement by new tissue, has been demonstrated.

with the aid of barytes-water; and in spite of the analogies which lead to its admission, it cannot be considered as demonstrated. But it is certain that it must have a special organization, which keeps it in a state of suspension instead of solution, and renders it precisely similar in chemical and physical properties to globular substances.—3. Like these globular substances, it must undergo modifications, in order to enter the economy, which render it soluble; and capable of assimilation; and albumen, *modified* by the ferment pepsin, becomes quite soluble, and capable of traversing membranes.—4. In consequence of these transformations, albumen exists in the economy in three very different conditions as regards their properties—viz., *normal* albumen, *modified* or *caseiform* albumen, and *albuminose*.—5. Morbid influences, by modifying the conditions of the physiological state of the membranes and the liquids, give rise to phenomena different from those which occur in the normal state. As a consequence of inflammations, excess of watery principles, defective viscosity, or the introduction into the economy of virus, miasms, poisons, or putrid ferments, the membranes cease to be endosmotic, and only present the phenomena of imbibition or filtration, analogous to those which take place after death. The vitiated and disorganized liquids (the blood and its elements) transude through the vessels, and appear in the splanchnic cavities, the cellular tissue, or the products of secretion.—6. Amidst this passage of albuminous matters into the dejections, we again meet with the three conditions of albumen, each connected with different pathological states—viz., *normal* albumen in extreme alterations of tissue, *modified* albumen in a vitiated state of the fluids, and *albuminose* in defective assimilation, or under the choleric influence.—*Brit. and For. Med.-Chirurg. Rev.* Oct. 1852, from *L'Union Médicale*, No. 90.

8. *On the Habitual Presence of Sugar in the Urine of the Aged*.—By M. DECHAMBRE.—During the great impulse which investigations into the characters of the excretions have received in the present time, we ought to be certain that some principles discovered are really due to a pathological condition, and do not, under some circumstances, exist normally. M. Bernard has shown that sugar may be physiologically produced by the liver; and the question is, what becomes of it. M. Reynoso has suggested that it is destroyed by pulmonary combustion, and that when the respiratory function becomes impeded, it will be found excreted in the urine. M. Dechambre taking up the question at this point, argues, that if insufficient hæmatisis gives rise to glucosuria, we ought to meet with this in the aged. He refers to the well-known researches into the condition of the respiratory organs of the aged, carried on by himself and M. Houtmann at the Salpêtrière, and described in the *Arch. Gén.* for 1835. These exhibited lateral depression of the thorax, projection of the sternum forwards, rigidity of the costo-vertebral articulations, ossification of the cartilages, and a rarefied condition of the pulmonary parenchyma, in which the cell-walls were found thinned or ruptured, and the capillary vessels obliterated. The defective hæmatisis which results from these physical changes should, then, favour the production of glucosuria; and experiments performed upon the urine of a considerable number of the aged women of the Salpêtrière have so constantly exhibited it, that M. Dechambre considers himself justified in asserting that *sugar exists habitually in the urine of the aged*, although its presence there may be possibly explained upon some other hypothesis.—*Brit. and For. Med.-Chirurg. Rev.* Oct. 1852, from *Rev. Med.-Chirurg.* tom. xi. p. 289.

## MATERIA MEDICA AND PHARMACY.

9. *Cod-Liver Oil*.—The admitted therapeutic advantages of this drug have excited a laudable desire on the part of many chemists, who make their scientific pursuits subservient to the practice of physic, to ascertain in what portion of its constituents its acknowledged remedial powers reside. The notion that the active agent was the almost infinitesimally small amount of iodine it con-